WHAT IS CLAIMED IS:

1. A method for high-speed, 3D imaging of optically-invisible radiation, the method comprising:

detecting optically-invisible radiation within an environment to obtain signals;

processing the signals to obtain stereoscopic data; and

displaying the stereoscopic data in the form of optically-visible radiation images superimposed on a view of the environment so that a user can obtain a 3D view of the radiation by utilizing natural human stereo imaging processes.

2. The method as claimed in claim 1 wherein the environment is a virtual environment.

3. The method as claimed in claim 1 wherein the environment is an optically-visible environment.

4. The method as claimed in claim 1 wherein the radiation is ionizing radiation.

5. The method as claimed in claim 4 further comprising energizing material so that the material emits or deflects the ionizing radiation.

6. The method as claimed in claim 1 wherein the radiation is infrared radiation.

7. A system for high-speed, 3D imaging of optically-invisible radiation, the system comprising:

a detector subsystem for detecting optically-invisible radiation within an environment to obtain signals;

a signal processor for processing the signals to obtain stereoscopic data; and

a display subsystem for displaying the stereoscopic data in the form of optically-visible radiation images superimposed on a view of the environment so that a user can obtain a 3D view of the radiation by utilizing natural human stereo imaging processes.

8. The system as claimed in claim 7 wherein the environment is a virtual environment.

9. The system as claimed in claim 7 wherein the environment is an optically-visible environment.

10. The system as claimed in claim 7 wherein the radiation is ionizing radiation.

11. The system as claimed in claim 10 further comprising means for energizing material so that the material emits or deflects the ionizing radiation.

12. The system as claimed in claim 7 wherein the radiation is infrared radiation.

13. The system as claimed in claim 7 wherein the detector subsystem includes a set of field or area detectors.

14. The system as claimed in claim 7 wherein the detector subsystem includes a set of point detectors.

15. The system as claimed in claim 7 wherein the detector subsystem includes a set of passive detectors.

16. The system as claimed in claim 7 wherein the detector subsystem includes a set of active detectors.

17. The system as claimed in claim 13 wherein the radiation is gamma-ray radiation and wherein the set of field detectors includes a pair of gamma-ray or other positional radiation detectors.

18. The system as claimed in claim 17 wherein the gamma-ray cameras are scanning gamma-ray cameras and wherein each of the gamma-ray cameras is capable of scanning the environment through a plurality of angles and wherein the signals are processed to locate a source within the environment.

19. The system as claimed in claim 7 wherein the radiation is ionizing radiation and wherein the detector subsystem includes a scintillator and a collimator for directing the ionizing radiation into the scintillator.

20. The system as claimed in claim 19 wherein the scintillator is curved.

21. The system as claimed in claim 7 wherein the detector subsystem includes a compound eye detector.

22. The system as claimed in claim 21 wherein the compound eye detector includes a plurality of individual detectors.

23. The system as claimed in claim 22 wherein the plurality of individual detectors are movable independently or as a group.

24. The system as claimed in claim 21 wherein the compound eye detector includes a single detector movable in three dimensions.

25. The system as claimed in claim 14 wherein the signal processor processes the signals to obtain a 3D map of radiation-emitting sources.

26. The system as claimed in claim 7 wherein the detector subsystem has stereoscopic capabilities.

27. The system as claimed in claim 7 wherein the detector subsystem is portable.

28. The system as claimed in claim 7 wherein the display subsystem includes a see-through display subsystem and wherein the system further includes a tracking system for tracking the display subsystem.

29. The system as claimed in claim 28 wherein the display subsystem is head-mountable.

30. The system as claimed in claim 7 wherein the system provides real-time visual feedback about location and relative strength of at least one radiation-emitting source.

31. An ionizing radiation detector comprising:

an ionization substrate for converting ionizing radiation into a signal;

a converter coupled to the substrate for converting the signal into a corresponding electrical signal; and

a positioner for moving the substrate in three dimensions to image over a surface of a sphere.

32. The detector as claimed in claim 31 wherein the substrate is a scintillator for converting ionizating radiation into photons of light.

33. The detector as claimed in claim 32 wherein the signal is an optical signal and the converter is a photodetector.

34. The detector as claimed in claim 32 wherein the signal is an optical signal and the converter is a multiplier phototube.

35. An array of detectors wherein each of the detectors is a detector as claimed in claim 31 and wherein the detectors are arranged in a curvilinear geometry.

36. The array as claimed in claim 35 wherein the detectors are arranged so that the array forms a substantially hemispherical device.

37. The array as claimed in claim 35 wherein the substrates of the detectors are formed from separate materials.

38. An ionizing radiation detector comprising:

an ionization substrate formed from a single material and having a curved first surface and a second surface opposing the first surface for converting ionizing radiation at the curved first surface into a signal; and

a radiation shield disposed at the second surface to substantially block ionizing radiation at the second surface.

39. The detector as claimed in claim 38 wherein the radiation shield is a fanned collimator.

40. The detector as claimed in claim 38 wherein the ionization substrate is a curved scintillator for converting ionizating radiation into photons of light.

41. The detector as claimed in claim 38 wherein the ionization substrate is a semiconductor substrate.

42. The detector as claimed in claim 38 wherein the detector forms a substantially hemispherical device.

43. The detector as claimed in claim 38 wherein the second surface is curved and is substantially parallel to the curved first surface.